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(71) Applicant *(for all designated States except US)*: MALESSA PARTNERS, LLC [US/US]; 4100 West Grand Avenue, Chicago, IL 60651 (US).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: MCKILLIP, John, J. [US/US]; 4100 West Grand Avenue, Chicago, IL 60651 (US).

(74) Agent: SAMPLES, Kenneth, H.; Fitch, Even, Tabin & Flannery, Suite 1600, 120 South LaSalle Street, Chicago, IL 60603 (US).

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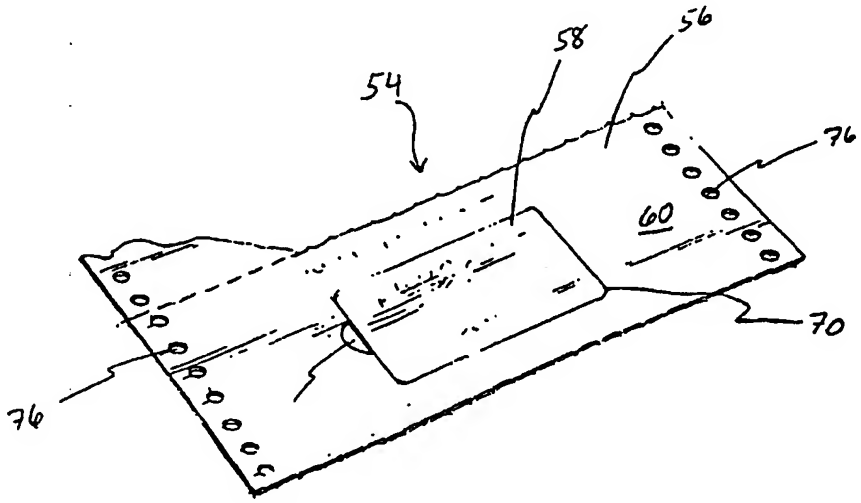
(54) Title: INTEGRATED FORMS AND METHOD OF MAKING SUCH FORMS



(57) Abstract: A form (54) that incorporates either a label or card (58) such that the form (54) includes a top printable substrate (56) and a liner substrate mated together by an adhesive. The top printable substrate (56) serves at least partially as removable portions capable of being reapplied. The form (54) may also include a similar printable substrate (56) mated to the other side of the liner by adhesive. Weakened lines of substrate may also be formed in the first and second substrate to define removable portions. The integrated card form (54) includes a printable substrate (56) and a first and second laminate mated to the substrate and together by an adhesive. In the integrated card form (54) and the integrated label form, a recess may be provided adjacent the removable portion. The integrated forms (54) are easily manufactured by a single piece of equipment.

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INTEGRATED FORMS AND METHOD OF MAKING SUCH FORMS

Field of the Invention

This invention relates generally to printable forms and methods of making such forms and, more particularly, to printable forms with integrated labels and cards.

Background of the Invention

There is a need for improved integrated business forms and methods of manufacturing such forms. Integrated forms consolidate different business objectives or services into a single form. A goal of such forms is not only to offer end users the flexibility to provide a variety of information and information transfer options through a single form, but to also reduce the time, money and material associated with using such business forms for both the end users and the form manufacturers. In the end, truly integrated forms increase the reliability, confidence and convenience in exchanging information between businesses and consumers.

The concept of an integrated form can be employed in numerous varieties depending on the objects of the particular end use. For example, an integrated form may consist of an invoice portion and a label portion incorporated into the same form. Thus, the business can print both the invoice information as well as the address information at the same time.

The mail order industry is a prime example of where such type of label is desired to ensure accurate billing and convenience to the consumer. For instance, in the mail order industry, the mail order company includes with the product an invoice, a shipping card addressed to the consumer and affixed to the packaging and a return card so that the consumer can conveniently return the purchased product within the return period. The obvious shortcoming with this process is the expense, time and possible confusion with purchasing, stocking and printing three separates

pieces (*i.e.*, the invoice, the addressee label, and the return address label or card).

An attempt to address these shortcomings is the use of a dedicated section on the invoice for printing of the return address. Thus, the form is sent through a printer which prints both the invoicing information and the return address in one process. In one form, the dedicated section may be outlined by a perforated section for detachment by the consumer. The obvious shortcomings include that the consumer must cut or tear the return address section from the form and affix it to the package with durable tape or adhesive in a manner that does not obstruct the address information. Because consumers do not always have adequate tape or adhesive, they use whatever they have available, which experience has shown, tends not to withstand the stresses associated with commercial shipping. As a result, the return address section is susceptible to falling off, which, when it occurs, often leads to disruption of the mailing system, disputes over whether the package was returned timely and damaged goods.

An attempt to address the return address situation has been made by adding a label to the form. These types of forms are commonly made by mating one side of a liner (such as a silicone coated liner) to the form and having a pressure sensitive label on the other side of the liner. The label then carries the address information, as well as the appropriate adhesive for reliable affixation to a return package. A shortcoming with this type of form is that the thickness created by the stacking of the form, the liner and the label often causes problems during the printing step. That is, the form jams the printer and prevents further use until appropriate service is undertaken. Another shortcoming is associated with pre-dispensing of the label because the label is not truly integrated with the form. That is, the label separates from the form and sticks to the rollers and/or drum of the printer. Thus, there is potential for serious damage to the printer. An even further shortcoming is the requirement additional materials to produce a three

layer form, which is only capable of providing a limited number of labels on one side of the form.

Integrated forms also are desired in industries that have the need to distribute cards, such as membership cards for identification or other programs (*e.g.*, frequent buyer programs and insurance programs). The cards traditionally have been printed separately and, to distribute such cards, they have been forwarded to the consumer under a separate forwarding cover letter. To address this situation, some companies attach the card to a form (such as a form forwarding letter) with a releasable adhesive. The obvious shortcoming is that the form is typically pre-printed and then run through a separate machine to add adhesive and the card. As a result, the card does not always become adequately affixed to the form, making it difficult to handle and susceptible to becoming unintentionally detached from the form. In addition, during removal of the card, it tends to peal off the top layer of the form, thereby reducing (and, in most cases eliminating) the backside of the card as a place for printed information.

Moreover, because the card tends to be inadequately secured to the form, it is not practical to consider printing after the card has been affixed. That is, the cards tend to fall off during the printing stage and bind up the printer. As explained above for labels, there is potential for serious damage to the printer. Thus, there is need for truly integrated forms that incorporate labels, cards, etc. into the form.

There also is the need to improve the methods of manufacturing such forms. The typical manufacturing equipment includes a paper infeed unit, a vacuum applicator unit, an unwind unit containing transfer tape, a hot melt applicator head, a feed control unit, an integral die cut unit, a hot melt unit and a fold-to-fold delivery unit. This processing equipment is commonly contained in two separate pieces of equipment. In other words, the manufacturing process is not one straight through in-line process, and therefore, tends to be expensive and labor intensive. The use of multiple

machines slows the entire manufacturing process, increases costs and requires additional personnel.

Accordingly, it has been determined that there exist the need for an improved integrated form that is more end user friendly and that facilitates a more economical method of manufacturing.

Summary of the Invention

In accordance with the invention, an improved integrated form is provided that enhances the use by end users and the manufacturing of such forms. In one form, there is provided an integrated from that includes a first printable substrate on one side of the form and a liner adjacent the first printable substrate. The liner has a first and second side. Adhesive on the first side of the liner maintains the first printable substrate to the first side of the liner in a manner that facilitates printing on the form without detachment of the first printable substrate. The first side of the liner is treated to permit a predetermined force to selectively remove the first printable substrate from the linear such that adhesive removes with the first printable substrate.

The first printable substrate may include a weakened line of substrate that defines at least in part a predetermined sized portion of substrate removable from the form. The weakened line of substrate resists unintentional detachment of the first printable substrate from the liner. The first printable substrate also may include a portion that extends beyond the liner.

The form may further include a second printable substrate on the other side of the form. The liner is intermediate the first and second printable substrates. Adhesive on the second side of liner maintains the second printable substrate to the second side of the liner in a manner that facilitates printing on the form without detachment of the second printable substrate. The second side of the liner being treated to permit a

predetermined force to selectively remove the second printable substrate from the linear such that adhesive removes with the second printable substrate.

The second printable substrate also may include a weakened line of substrate that defines at least in part a predetermined sized portion of substrate removable from the form. The weakened line of substrate resists unintentional detachment of the second printable substrate from the liner.

The first printable substrate may also include a portion adjacent the removable portion of substrate that has been removed from the form to facilitate manual removal of the removable portion of substrate.

In another form, there is provided an integrated form that includes a printable substrate having a first side, a second side and a removable portion. A first layer of laminate covers at least a portion of one of the first and second sides of the printable substrate such that at least the removable portion of the printable substrate is covered. The first layer of laminate has a portion that is removable with the removable portion of the printable substrate. A second layer of laminate covers at least a portion of the first layer of laminate such that the second layer holds the removable portion of the substrate and first layer of laminate in the form while also allowing a predetermined force to remove the removable portion of the first layer of laminate and printable substrate from the form.

The integrated form may include a line of weakness extending through both the printable substrate and the first layer of laminate to define at least in part the removable portion of the printable substrate. The removable portion of the printable substrate also may have perimeter portion and the second layer of laminate may affix to the first layer of laminate only at the perimeter portion of the printable substrate. The form also may include a second portion of the printable substrate that is removable to facilitate removal of the other removable portion.

There also is provided a method of making an integrated form. The method includes the steps of providing a first printable substrate and providing a liner having a first and second side. Adhesive is applied to the first sides of the liner, and the first printable substrate is mated to the first side of the liner. Weakened lines of substrate in the first printable substrate are formed to define a label of predetermined size.

The method may include the steps of providing a second printable substrate, applying adhesive to the second side of the liner and mating the second printable substrate to the second side of the liner. Weakened lines of substrate may be formed in the second printable substrate to define a label of predetermined size.

The method also may include the steps of blocking the application of adhesive to a portion of the liner to be mated with the first printable substrate and removing a portion of the first printable substrate to facilitate easy removal of the label.

In another manner, there is provided a method of making an integrated form that includes the steps of providing a printable substrate having a first side and second side, applying a first layer of laminate to the second side of the printable substrate and applying a second layer of laminate to the first layer of laminate. Cut lines are formed through the printable substrate and the first layer of laminate to define a removable portion of the form being maintained in the form by the second layer of laminate until intentional removal from the form.

The method may include the step of removing a portion of the second layer of laminate across the removable portion of the printable substrate to reduce the amount a force necessary to remove the removable portion from the form. The method also may include cutting of a removable section of the form adjacent to the removable portion to facilitate removal of the removable portion.

Brief Description of the Drawings

FIG. 1 is a top perspective view of an integrated label form embodying features in accordance with the present invention;

FIG. 2 is a bottom perspective view of the integrated form of FIG. 1;

FIG. 3 is a cross-section view taken along line 3-3 of the integrated form of FIG. 1;

FIG. 4 is an exploded perspective view of another embodiment of an integrated label form in accordance with the present invention;

FIG. 5 is a cross-sectional view taken along line 5-5 of the integrated from of FIG. 4 as assembled;

FIG. 6 is a cross-sectional view of an integrated form similar to that illustrated in FIG. 5 with the addition of multiple labels on one side;

FIG. 7 is a cross-sectional view of an integrated form similar to that illustrated in FIG. 6 with the addition of multiple labels on both sides;

FIG. 8 is a top perspective view of another embodiment of an integrated label form in accordance with the present invention;

FIG. 9 is a bottom perspective view of the integrated from of FIG. 8;

FIG. 10 is a cross-sectional view taken along line 10-10 of the integrated form of FIG. 8;

FIG. 11 is a top perspective view of an integrated card form embodying features in accordance with the present invention;

FIG. 12 is a top perspective view of the integrated card form of FIG. 11 with card removed;

FIG. 13 is a cross-sectional view taken along line 13-13 of the integrated card form of FIG. 11;

FIG. 14 is an exploded perspective view of the integrated card form of FIG. 11; and

FIG. 15 is a exploded cross-sectional view taken along line 15-15 of the integrated card form of FIG. 14 with a corresponding cross-section of the card suspended above.

Detailed Description of the Preferred Embodiment

Referring to FIGS. 1-3, there is illustrated a form 10 embodying the truly integrated label features of the present invention. The integrated form 10 facilities reliable printing by the end user and convenient labels for the end user as well as others (such as consumers).

The form 10 is composed of three substrate layers: a top printable substrate 12; an intermediate liner substrate 14; and a bottom printable substrate 16. The top and bottom substrates 12 and 16 are made of material that is capable of being readily printed on using conventional printers, such as laser printers. Such materials include paper, card stock or even printable polymer based substrates.

The liner substrate 14 is mated to the top and bottom substrates 12 and 16 with a pressure sensitive adhesive 18 on both sides. The liner substrate 14 is made of material and treated such that it has reduced binding characteristics to allow a label portion 22 to be easily separated for use by the end user but that will not become detached during printing. Such liner material includes silicone coated glassine, on both sides, as well as Teflon® coated glassine, and bleachcraft may be substituted for glassine.

In manufacturing the form 10, the top and bottom printable substrates 12 and 16 are mated to the liner substrate 14 by adhesive 18. The adhesive 18 is hot melt adhesive or any other adhesive capable of releasably attaching the substrates 12 and 16 to liner substrate 14. The form 10 is then sent through a die press to create weakened lines 20 on the top substrate 12 to define top labels 22a and 22b and on the bottom substrate 16 to define bottom label 22c. As a result, dedicated sections of

the printable substrates 12 and 16 become the labels 22a and 22b, thereby providing a form 10 with truly integrated labels.

Alternatively, the bottom side of liner 14 may already include the bottom printable substrate 16, (a pre-labeled liner). In this case, adhesive 18 is applied to the side of the liner 14 not having the label 22c, and mated to first printable substrate 12. The combination of substrates is then taken through a die press where the first printable substrate is pressed creating labels 22a and 22b. Alternatively, the pre-labeled liner 14 may not have been die pressed as of yet thereby requiring the second printable substrate 16 to be die pressed as well.

As illustrated in FIG. 1, the top printable substrate 12 includes two labels 22a and 22b. The remainder 24 of the top substrate 12 is left to supply printed information that does not required transfer capability via a label. Hence, the liner 14 does not extend below portion 24 of the top substrate 12. As an example, if the form 10 was an integrated label invoice form, section 24 would include the order information 22, label 22a would be the shipping label, label 22b would be the return shipping label and label 22c would be an additional label for other purposes. Thus, the form 10 only consumes the minimal amount of material necessary to provide the required form space and number of labels.

Where additional labels are required because more of the information on the form must be transferred, an alternate form 26 is constructed in which a larger liner substrate is incorporated into the form. Referring to FIGS. 4-7, the form 26 includes a liner substrate 28 and/or a bottom printable substrate 30 that extends over as much of the top printable substrate 32 as is necessary to provide the desired number and size of labels. As a result, the cost of supplying additional labels to transfer more information is reduced because labels are formed on both sides of the liner substrate 28 with the top substrate 32 and the bottom substrate 30.

More specifically, as illustrated, the liner substrate 28 and the bottom substrate 30 are sized such that their edges are co-extensive with the top substrate 32. The liner substrate 26 is intermediate the top substrate 32 and the bottom substrate 30, and is affixed to such substrates with an adhesive 34. As illustrated in FIG. 5, the bottom and top substrates 30 and 32 each constitute one large label. As illustrated in FIG. 6, the top substrate 32 constitutes one large label, and the bottom substrate 30 is die cut to include cut lines 36 that define a number of labels 38. As illustrated in FIG. 7, the top substrate 32 also is die cut to include cut lines 36 which define a number of labels 40. The material for the top and bottom substrates (32 and 30), the liner 26 and the adhesive 34 is the same as that described above for form 10 of FIGS. 1-3.

Referring to FIGS. 8-10, an integrated label form 42 in accordance with another aspect of the invention is shown. The form 42 includes a printable substrate 44 and a liner substrate 46. With form 42, the liner substrate 46 does not include any indentations or deformations as a result of die cutting to form the labels because the printable substrate 44 is die pressed before being mated to the liner substrate 46. By die pressing printable substrate 44 prior to mating it with liner substrate 46, the liner substrate 46 is not exposed to any possibility of being weakened or deformed due to the die cutting process. This ensures that the liner substrate 46 will be as smooth and uniform as possible, and increases the likelihood that the integrated form 42 will print properly.

More specifically, the printable substrate 44 is affixed to the liner substrate 46 by adhesive 48. Prior to affixing these substrates, the printable substrate 44 is die pressed to form lines of weakness 50 (or perforations) that define a number of labels 52. As illustrated with label 52a, one can easily peal the labels from the liner substrate 46 along the lines of weakness 50. The adhesive 48 lifts off the liner substrate 46 and remains

with the label 52a so that it can be transferred and affixed to another surface.

To manufacture this form 42, the printable substrate 44 is printed with the desired graphics and/or text and is then die pressed to designated the labels 52 with the appropriate lines of weakness 50. Finally, the printed substrate 44 is mated to the liner with the adhesive 48.

Referring to FIGS. 11-15, there is illustrated an integrated card form 54 embodying features of the present invention. The form 54 includes a printable substrate 56 from which is formed a card 58. The printable substrate 56 has a top side 60 and a bottom side 62 upon which both sides can be printed any desired graphics and/or text.

The bottom side 62 is covered with a first layer of laminate 64 over the card portion 58. The first layer of laminate 64 provides rigidity and protection to the card 58. A second layer of laminate 66 is affixed to the first layer 64 to hold the card 58 in place in the form. Both layers of laminate include a layer of adhesive 68 on one side for affixation to the substrate 56 and the other layer of laminate 64.

The card 58 is defined by a number of lines of weakness or cuts 70 die cut through the substrate 56 and the first layer of laminate 64. The second layer of laminate 66 includes an aperture 72 at the card 58 which is defined by a ledge 74 that extends inward beyond the cuts 70 to expose the adhesive 68 to secure the card 58 in place. The ledge may have a width of 1/8th of an inch width.

In other words, the card 58 rests against the ledge 74 and the adhesive 68 at the ledge 74 affixes to the first layer of laminate 74 about the perimeter portion of the card 58 in a manner that prevents unintentional release of the card 58 while also allowing the card 58 to be intentionally removed. For instance, to remove the card 58, one can easily press from the backside of the card 58 to push the card from the form 54. The size of the

ledge 74 and the amount and type of adhesive 68 is coordinated to provide the appropriate gripping action on the card 58.

Alternatively, the second layer of laminate may not have an aperture, but may act as a transparent window exposing the bottom of the card. In this instance, it is preferred that the entire window area not be covered completely with adhesive to facilitate removal of the card.

To manufacture the integrated card form 54, the top side 60 and bottom side 62 of card 58 are printed with graphics and text as desired. Next, the first layer of laminate 64 is mated with the back side of substrate 56 and then the second layer of laminate 66. The lines of weakened substrate or cuts 70 are die cut from the top side 60 of the substrate 56 through the first layer of laminate 64 to form the card 58. The second layer of laminate 66 is not cut so that it can hold the card 58 in the form 54 against unintentional detachment. Alternatively, the second layer of laminate 66 may be cut to remove a portion at the card and to form the ledge 74. This is performed prior to mating the second layer of laminate 66 with the first layer of laminate 64. The entire process is to be done on a single machine. Feed structure 76 is provided to aid with feeding the integrated form through a printer (not shown). However in alternate embodiments no feed structure 76 may be provided.

To further assist in card removal, the form 54 also includes a recess 78 adjacent the card 58 for one to insert a finger, thumb, or part thereof to facilitate removal. The recess extends through the printable substrate 56 and both the layers of laminate 64 and 66. Recess 78 could be used in a similar manner in integrated form 10 (Figs. 1-3), form 26 (Figs. 4-7), and form 42 (Figs. 8-10). That is, a portion of the substrate could be die cut prior to being mated with the liner and the liner could be blocked from receiving adhesive at that section. As a result, a portion of the liner is exposed and one can easily peel the label from the liner to separate it from the form.

While there have been illustrated and described particular embodiments of the present invention, it will be appreciated that numerous changes and modifications will occur to those skilled in the art, and it is intended in the appended claims to cover all those changes and modifications which fall within the true spirit and scope of the present invention.

CLAIMS

What is claimed is:

1. An integrated form comprising:

a first printable substrate on one side of the form;

a liner adjacent the first printable substrate, the liner having a first and second side; and

an adhesive on the first side of the liner to maintain the first printable substrate to the first side of the liner in a manner that facilitates printing on the form without detachment of the first printable substrate, and the first side of the liner being treated to permit a predetermined force to selectively remove the first printable substrate from the linear such that adhesive removes with the first printable substrate.

2. An integrated form in accordance with claim 1 wherein the first printable substrate includes a weakened line of substrate defining at least in part a predetermined sized portion of substrate removable from the form, and the weakened line of substrate resists unintentional detachment of the first printable substrate from the liner.

3. An integrated form in accordance with claim 2 wherein a portion of the first printable substrate extends beyond the liner.

4. An integrated form in accordance with claim 3 which further comprises a second printable substrate on the other side of the form, the liner being intermediate the first and second printable substrates and adhesive on the second side of liner to maintain the second printable substrate to the second side of the liner in a manner that facilitates printing on the form without detachment of the second printable substrate, and the second side of the liner being treated to permit a predetermined force to

selectively remove the second printable substrate from the linear such that adhesive removes with the second printable substrate.

5. An integrated form in accordance with claim 4 wherein the second printable substrate includes a weakened line of substrate defining at least in part a predetermined sized portion of substrate removable from the form, and the weakened line of substrate resists unintentional detachment of the second printable substrate from the liner.

6. An integrated form in accordance with claim 5 wherein a portion of the first printable substrate adjacent the removable portion of substrate has been removed from the form to facilitate manual removal of the removable portion of substrate.

7. An integrated form comprising:

a printable substrate having a first side, a second side and a removable portion;

a first layer of laminate covering at least a portion of one of the first and second sides of the printable substrate such that at least the removable portion of the printable substrate is covered and having a portion removable with the removable portion of the printable substrate; and

a second layer of laminate covering at least a portion of the first layer of laminate such that the second layer of laminate allows a predetermined force to remcve the removable portion of the printable substrate from the form.

8. An integrated form in accordance with claim 7wherein a line of weakness extends through both the printable substrate and the first layer of laminate to define at least in part the removable portion of the printable substrate.

9. An integrated form in accordance with claim 8 wherein the removable portion of the printable substrate has a perimeter portion and the second layer of laminate affixes to the second layer of laminate only at the perimeter portion of the printable substrate.

10. An integrated form in accordance with claim 9 wherein a section of the printable substrate is removable to facilitate removal of the removable portion.

11. A method of making an integrated form comprising the steps of:

providing a first printable substrate;

providing a liner having a first and second side;

applying an adhesive to the first side of the liner;

mating the first printable substrate to the first side of the liner;

forming weakened lines of substrate in the first printable substrate to define a label of predetermined size.

12. A method of making an integrated form in accordance with claim 11 which comprises the steps of providing a second printable substrate, applying an adhesive to the second side of the liner; and mating the second printable substrate to the second side of the liner.

13. A method of making an integrated form in accordance with claim 12 which comprises the step of forming weakened lines of substrate in the second printable substrate to define a label of predetermined size.

14. A method of making an integrated form in accordance with claim 11 which comprises the steps of blocking the application of adhesive to a portion of the liner to be mated with the first printable substrate and removing a portion of the first printable substrate to facilitate easy removal of the label.

15. A method of making an integrated form comprising the steps of:

providing a printable substrate having a first side and second side;

applying a first layer of laminate to the second side of the printable substrate;

applying a second layer of laminate to the first layer of laminate;

forming cut lines through the printable substrate and the first layer of laminate to define a removable portion of the form being maintained in the form by the second layer of laminate until intentional removal from the form.

16. A method of making an integrated form in accordance with claim 15 comprising the step of removing a portion of the second layer of laminate across the removable portion of the printable substrate to reduce the amount a force necessary to remove the removable portion from the form.

17. A method of making an integrated form in accordance with claim 16 comprising the step of cutting as removable section of the form adjacent to the removable portion to facilitate removal of the removable portion.

Fig. 1

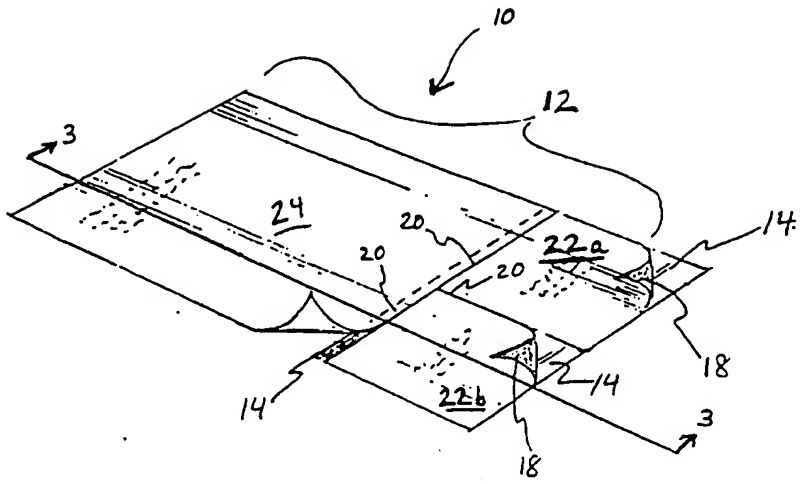


Fig. 2

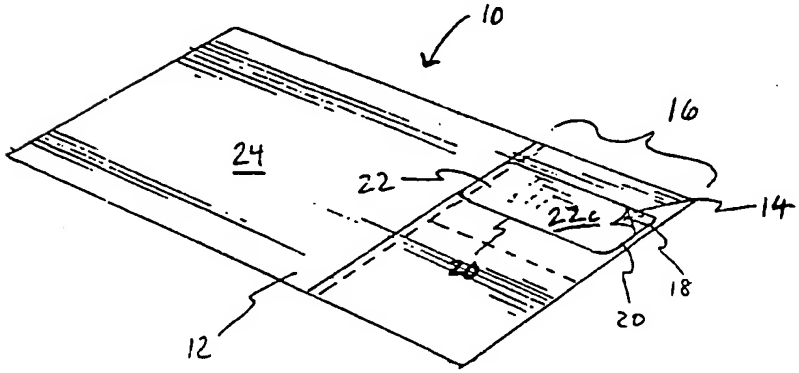


Fig. 3

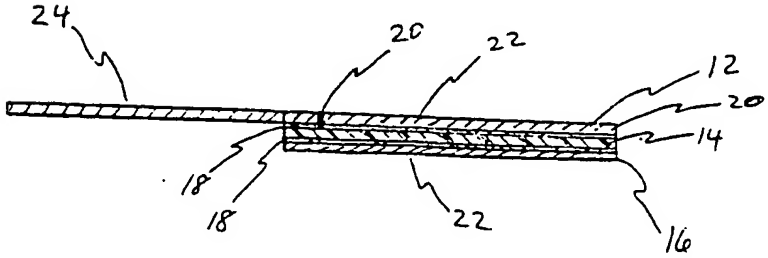


Fig. 4

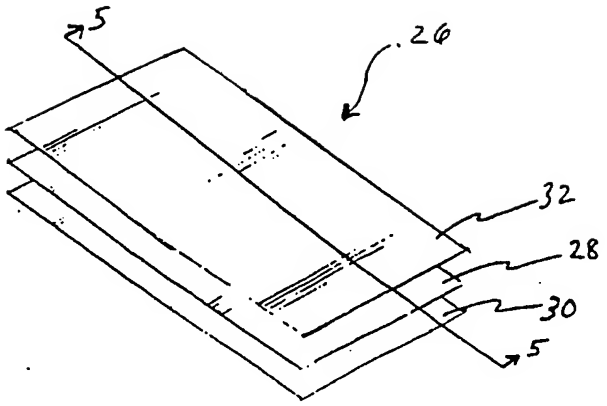


Fig. 5

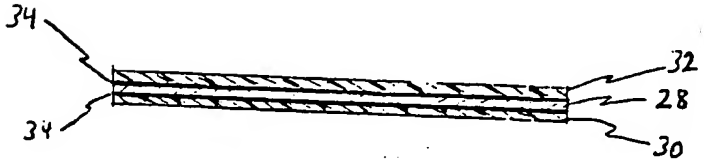


Fig. 6

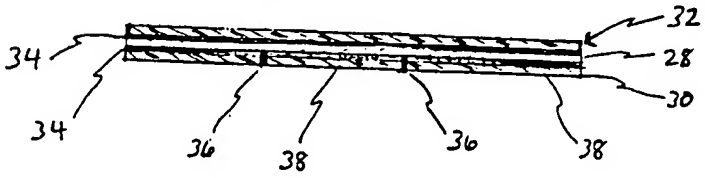


Fig. 7

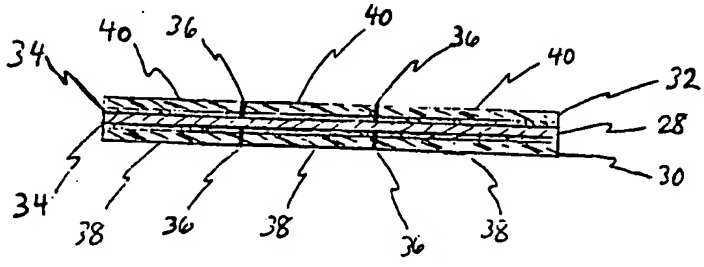
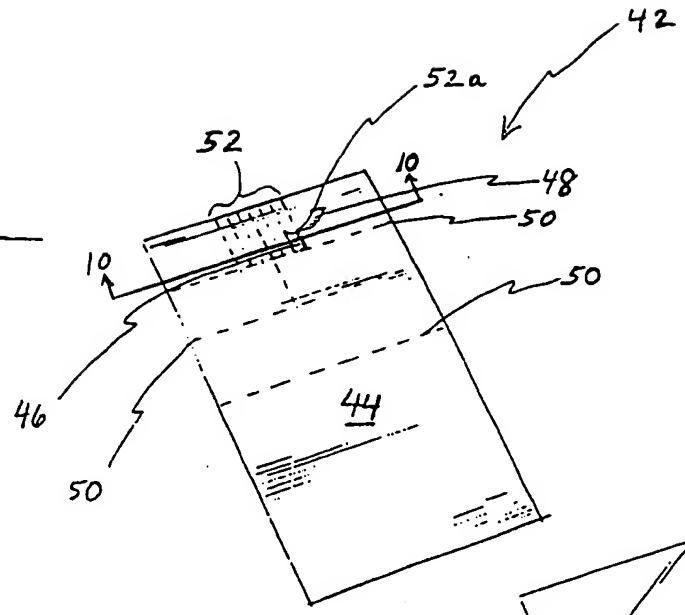


Fig. 8



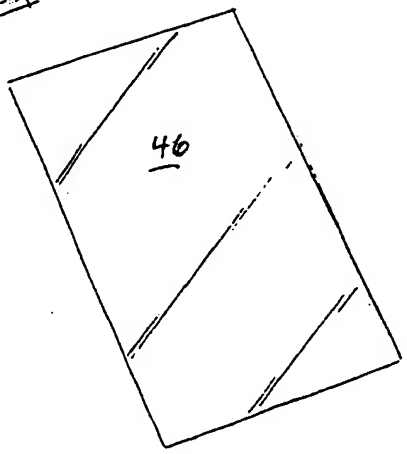


Fig. 9

Fig. 10

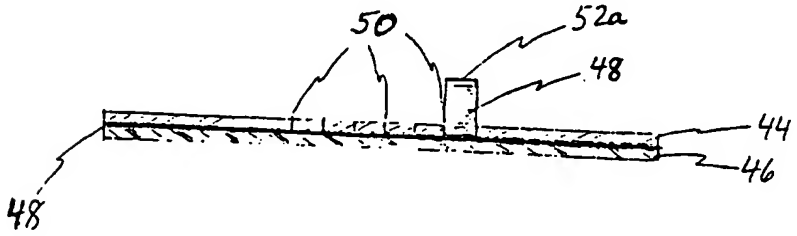


Fig. 11

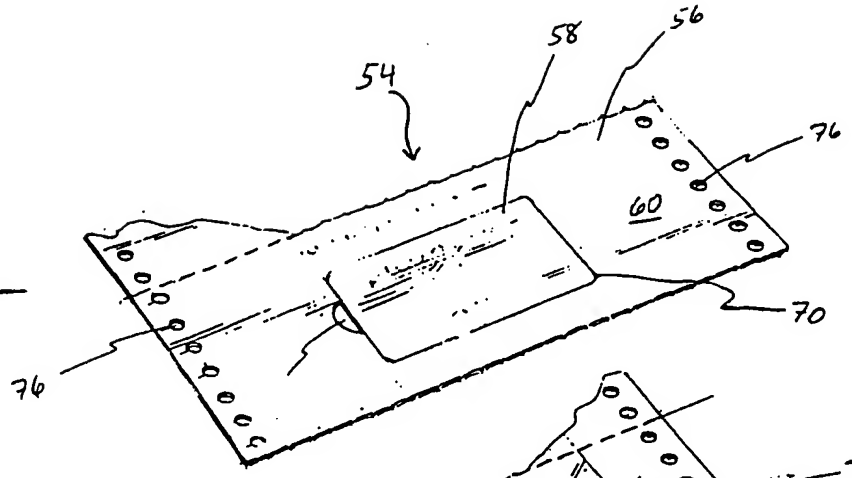


Fig. 12

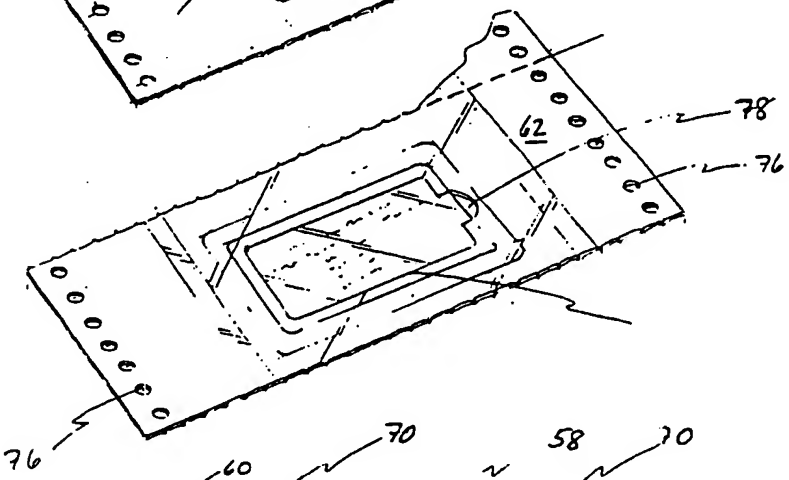


Fig. 13

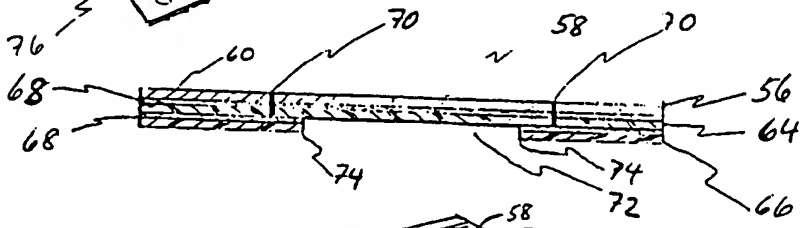


Fig. 14

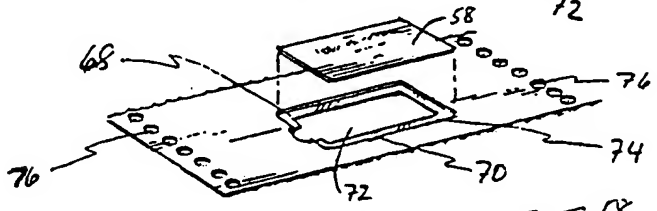


Fig. 15